**End of Result Set**

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L1: Entry 1 of 1 File: USPT Jan 27, 1998

US-PAT-NO: 5712985
DOCUMENT-IDENTIFIER: US 5712985 A

TITLE: System and method for estimating business demand based on business influences

DATE-ISSUED: January 27, 1998

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---|---|---|---|---|
| Lee; Michael D. | Albuquerque | NM | 87124 | |
| Fields; Randall K. | Park City | UT | 84060 | |
| Pond; Jamie T. | Salt Lake City | UT | 84109 | |
| Tondevold; Barrire K. | Murray | UT | 84123 | |

APPL-NO: 08/ 542847 [PALM]
DATE FILED: October 13, 1995

PARENT-CASE:
RELATED APPLICATION This application is a continuation in part of application Ser. No. 08/023,111, filed on Feb. 26, 1993, now U.S. Pat. No. 5,459,656 entitled BUSINESS DEMAND ESTIMATION SYSTEM, incorporated by referenced herein, which is a continuation in part of application Ser. No. 07/808,982, filed on Dec. 17, 1991, entitled PRODUCT DEMAND SYSTEM AND METHOD which is a continuation application of Ser. No. 07/406,069, filed on Sep. 12, 1989, entitled PRODUCT DEMAND SYSTEM AND METHOD, all of which are commonly owned by the assignee.

INT-CL: [06] G06 F 17/60

US-CL-ISSUED: 395/207; 395/210, 395/208, 364/468.01, 364/468.02, 364/468.03
US-CL-CURRENT: 705/7; 700/95, 700/96, 700/97, 705/10, 705/8

FIELD-OF-SEARCH: 395/208, 395/210, 395/207, 364/468.01, 364/468.02, 364/468.03

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

| | PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|---|
| ☐ | 4141069 | February 1979 | Fox | 364/493 |
| ☐ | 5111391 | May 1992 | Fields et al. | 395/209 |
| ☐ | 5224034 | June 1993 | Katz et al. | 395/207 |
| ☐ | 5255181 | October 1993 | Chapman et al. | 395/208 |
| ☐ | 5287267 | February 1994 | Jayaraman et al. | 395/210 |
| ☐ | 5299115 | March 1994 | Fields et al. | 395/210 |
| ☐ | 5440480 | August 1995 | Costanza | 395/208 |
| ☐ | 5446890 | August 1995 | Renslo et al. | 395/600 |
| ☐ | 5459656 | October 1995 | Fields et al. | 395/207 |
| ☐ | 5615109 | March 1997 | Eder | 395/207 |

OTHER PUBLICATIONS

STSC Inc.; Mar. 16, 1987. Acc. #00152990, File 621.
"Optimal production planning . . . " by Bartmann, D.; Oct. 1983 Acc. #02301025 file #2.

ART-UNIT: 241

PRIMARY-EXAMINER: Hayes; Gail O.

ASSISTANT-EXAMINER: Shingala; Gita

ATTY-AGENT-FIRM: Fenwick & West LLP

ABSTRACT:

A demand forecasting and production scheduling system and method creates production schedules for various business items describing a forecasted demand for the business items in a number of future time intervals. The system includes a computer managed database of various profiles, including a base profile for each business item, and a number of influence profiles. The profiles describe variations in demand for the business item in a number of time intervals. The base profile describes an underlying level of demand for a business item that is anticipated for the business item absent any influencing factors, such as promotional sales, holidays, weather variations, and the like. The variations in demand for the business item due to such influence factors are stored in the database as influence profiles. The influence profiles may be either standard, percentage, or seasonal. The forecasted demand for a business item in a number of future time intervals is determined by selective combination of the base profile for the business item and any number of influence profiles. The forecasted demand is stored in the database in a forecast profile. From the forecast profile a production schedule is created, and the business item provided according to the production schedule. Actual demand for the business item is monitored and stored. The variation between actual demand and the forecasted demand is used to update the base and influence profiles. From the updated base and influence profiles the forecasted demand is redetermined, and the production schedule updated accordingly.

48 Claims, 6 Drawing figures

**End of Result Set**

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L3: Entry 1 of 1 File: USPT May 13, 1997

US-PAT-NO: 5630070
DOCUMENT-IDENTIFIER: US 5630070 A

TITLE: Optimization of manufacturing resource planning

DATE-ISSUED: May 13, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---|---|---|---|---|
| Dietrich; Brenda L. | Yorktown Heights | NY | | |
| Wittrock; Robert J. | Ossining | NY | | |

ASSIGNEE-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|---|---|---|---|---|---|
| International Business Machines Corporation | Armonk | NY | | | 02 |

APPL-NO: 08/ 108014 [PALM]
DATE FILED: August 16, 1993

INT-CL: [06] G06 F 17/60

US-CL-ISSUED: 395/208
US-CL-CURRENT: 705/8

FIELD-OF-SEARCH: 364/401, 364/402, 304/41R, 304/402, 395/207-208, 395/210

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

| | PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|---|
| ☐ | 4646238 | February 1987 | Carlson, Jr. et al. | 364/403 |
| ☐ | 4744026 | May 1988 | Vanderbei | 364/402 |
| ☐ | 4744027 | May 1988 | Bayer et al. | 364/402 |
| ☐ | 4885686 | December 1989 | Vanderbei | 364/402 |
| ☐ | 4924386 | May 1990 | Freedman et al. | 364/402 |
| ☐ | 5053970 | October 1991 | Kurihara et al. | 364/468 |
| ☐ | 5093794 | March 1992 | Howie et al. | 364/468 |
| ☐ | 5101352 | March 1992 | Rembert | 364/401 |
| ☐ | 5140537 | August 1992 | Tullis | 364/578 |
| ☐ | 5148370 | September 1992 | Litt et al. | 364/468 |
| ☐ | 5155679 | October 1992 | Jain et al. | 364/402 |
| ☐ | 5172313 | December 1992 | Schumacher | 364/401 |
| ☐ | 5185715 | February 1993 | Zikan et al. | 364/807 |
| ☐ | 5216593 | June 1993 | Dietrich et al. | 364/402 |

FOREIGN PATENT DOCUMENTS

| FOREIGN-PAT-NO | PUBN-DATE | COUNTRY | US-CL |
|---|---|---|---|
| 0364090 | August 1989 | EP | |
| 0517953A2 | December 1991 | EP | |

OTHER PUBLICATIONS

"Molp with an Interactive Assessment of a Piecewise Linear Utility Function", Jacquet-Lagreze et al, European Journal of Operational Research, vol. 31, 1987, pp. 350-357.
"A Hybrid Approach to Multi-Objective Linear Optimization", Poh et al., Journal of the Operational Research Society, vol. 41, No. 11, 1990, pp. 1037-1048.
"A Weighted-Gradient Approach to Multi-Objective Linear Programming Problems Using the Analytic Hierarchy Process", Arbel, Mathematical and Computer Modelling, vol. 14, No. 4/5, 1993, pp. 27-39.
"Determination of the Crop Mix of a Rubber and Oil Plantation--A Programming Approach", Tan et al., European Journal of Operational Research, vol. 34, 1988, pp. 362-371.

ART-UNIT: 241

PRIMARY-EXAMINER: Hayes; Gail O.

ASSISTANT-EXAMINER: Kyle; Charles

ATTY-AGENT-FIRM: Perman & Green

ABSTRACT:

A method for constrained material requirements planning, optimal resource allocation, and production planning provides for an optimization of a manufacturing process by designating the amounts of various manufactured products to be produced, which products include both end products as well as subassemblies to be employed in the manufacture of one or more of the end products. In order to accomplish the optimization, the method employs an objective function such as the maximization of income in a situation wherein there are limitations on the inventory of raw materials and tools to be employed in the manufacturing process. Data describing

elemental steps in the manufacturing process for the production of each end product, as well as the quantity or demand for each end product which is to be supplied, are presented as a set of linear mathematical relationships in matrix form to be inserted in a computer which determines the optimum number of each end product in accordance with an LP optimization algorithm. The matrix contains bill of material data, and various constraints such as a constraint on the sum of products shipped and used as subassemblies, and constraints based on inventory, on available time for use of resources such as tools, and on inventory left over from an early production run for a later run.

23 Claims, 10 Drawing figures